State of Maryland
Maryland Health Care Commission

Characteristics of Maryland Residents Who Obtain Health Insurance from the Small and Large Group Markets

Extramural Report Series

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Preface

This report contains findings from a project conducted by the Project HOPE Center for Health Affairs under contract #DCT-98-5194 to the Maryland Health Care Commission (formerly the Maryland Health Care Access and Cost Commission). The purpose of this project was to compare Maryland residents who obtain health coverage through the small group market to those who obtain coverage through the large group market. The report makes comparisons across several dimensions that include: (a) demographic characteristics, such as age and gender; (b) clinical characteristics, such as presence of chronic conditions and overall "illness-burden" using ACG category assignment; and (d) health care expenditures and resource utilization.

The findings and recommendations detailed in this report are those of the Project HOPE Center for Health Affairs and do not necessarily reflect the views of the Maryland Health Care Commission. The work described in this report has been monitored by MHCC staff monitored the work completed under this task order to ensure compliance with the contract's technical specifications. Comments about this report may be sent to Ben Steffen at the Maryland Health Care Commission, 4201 Patterson Avenue, Baltimore MD 21215 at (410)-764-3570 or via e-mail at bsteffen@mhcc.state.md.us.

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Report Highlights

The Comprehensive Standard Health Benefit Plan (CSHBP) is a uniform benefit package that Maryland health insurance carriers who sell to the small group market, the self-employed and those employer groups having between 2 and 50 employees, are required to offer. The Maryland Health Care Commission (MHCC) sets cost sharing levels for each of several delivery system types through which the CSHBP may be offered: indemnity, Health Maintenance Organizations (HMO), preferred provider organizations (PPO), point-of-service options (POS), triple option, and PPO/Medical Savings Accounts (PPO/MSA). Carriers participating in the small group market are required to offer the CSHBP on a guaranteed issue and guaranteed renewal basis. Groups or individuals cannot be excluded from coverage and benefits cannot be limited because of a pre-existing condition. Carriers are not permitted to establish premiums on the basis of health status or claims experience; rather, they must use adjusted community rating. Although carriers are required to offer only the CSHBP, employers may purchase riders to enhance the benefits offered or to reduce cost sharing levels.

Evidence to date suggests that the CSHBP has met its initial objectives of expanding health insurance coverage to small employers. However, growth in small group premiums has outpaced growth in premiums for employer-sponsored health plans nationwide. The objective of this study is to determine the extent to which this trend in premium growth may be attributable to adverse selection or differences in patterns of service utilization.

Methods

Data for this study was obtained from the 1999 Maryland Medical Care Database (MCDB). The analyses conducted were descriptive in nature and designed to determine whether non-elderly residents who used ambulatory health care services in 1999 and who obtained health insurance through the small group market differed on key characteristics from health care users whose coverage was obtained through the large group market. For the purpose of this analysis individuals over the age of 65 and those for whom the small or large group product was not the primary insurer were excluded.

Health care users in the small and large group markets were compared on a number of characteristics that included the following:

(1) Demographics - age, gender and region of residence;
(2) Health Status - presence of chronic conditions (diabetes, hypertension, heart disease, cerebrovascular disease) and illness burden as measured by Ambulatory Diagnostic Groups (ADGs);
(3) Pattern of Service Utilization - utilization of evaluation and management (E&M) services, procedures, tests, and imaging; Relative Value Units (RVUs); and expenditures for professional and non-institutional services.

Previous analyses conducted with the MCDB have shown that carriers differ substantially in the completeness and format of encounter data submitted and, as noted, Maryland law does not require carriers to submit data for primary care services rendered on a capitated basis. In conducting this analysis it was important to ensure that observed differences in the characteristics of individuals covered through the small and large group markets are attributable to actual differences in the population and not data artifacts. To better ensure the comparability of data only records corresponding to the subset of carriers that participate in both the small and the large group market were retained in this analysis. Additionally analyses were conducted separately for HMO and non-HMO products to account for differences in reporting of primary care services across delivery system type.

Summary of Results

HMO Products

- The age and sex distributions of individuals enrolled in small and large group HMO products were comparable.

- The average and median number of ADGs among health care users in the small and large groups was similar. Individuals insured through either market averaged approximately 3.0 ADGs and 0.3 major ADGs per person.

- Controlling for differences in payer mix health care recipients in the large group market had a relatively equal likelihood of have a diagnosis of diabetes, heart disease, cerebrovascular disease or hypertension.

- Nearly 87 percent of health care recipients enrolled in a small group HMO product received at least one E & M service compared to only 80 percent of those enrolled in a large group HMO product.

- Resource intensity, as measured by average RVUs, was slightly higher for health care recipients in the small group market; the average number of RVUs was approximately 11 percent higher for individuals in the small group market than for those in the large group market.

Non-HMO Products

- Health care users in the non-HMO small and large group market did not differ in terms of age distribution or gender.

- The percentage of health care users in the small and large group markets with diabetes and cerebrovascular disease were comparable.

- Seven percent of health care users in the small group market were found to have an E&M diagnosis of heart disease compared to 6.2 percent of health care users in the small group market.

- Individuals insured through the non-HMO small group market averaged 3.3 ADGs compared to 3.0 ADGs for those covered through the large group market; the number of major ADGs among health care users in the small and large group was comparable, an average of 0.3.

- Controlling for payer mix differences, enrollment in a small group non-HMO product increases the likelihood of receiving an E & M service by 6 percentage points and the likelihood of receiving a procedure, test or imaging service by approximately 3 percentage points or less.

- Average number of RVUs were 10.7 for health care recipients in the non-HMO small group market and 9.8 for health care recipients in the large group market, a difference of 9 percent.

- Average expenditures for professional and non-institutional services, including out-of-pocket reimbursement and the carriers' liability were 4 percent higher among individuals enrolled in a non-HMO small group product.

Conclusions

The findings from this study suggest that individuals who are covered through the small group market do not differ markedly in terms of health status or the presence of selected chronic conditions from those covered through the large group market. Although only small differences in health status were detected, individuals insured through the small group market had a somewhat more resource intensive pattern of utilization than individuals insured through large group market.

The differences between the small and large group market that were detected in this study were relatively minor, and it is unclear whether individuals insured through the CSHBP are actually more resource intensive than those insured through the large group market or whether these differences are data artifacts. Since non-HMO deductible levels tend to be higher in the small group market individuals who seek treatment for minor conditions or who merely receive preventive services are less likely to submit claims and to be represented in the small group market data. On the one hand, omission of these claims could make it appear that individuals in the small group market are more resource intensive than health care users in the large group market. On the other hand, estimates of differences in the number of individuals in the non-HMO small and large group markets who received selected types of services are likely to understate the magnitude of the actual difference. HMO results are unlikely to be biased by data omissions of this nature since first-dollar coverage is generally available. The extent to which non-HMO results are biased by these data omissions is unclear but may not be substantial since many employers who opt for a non-HMO product purchase riders to "buy down" deductibles.

The findings from this study suggest that in evaluating the performance of the small group market and, specifically, the reasons why premium increases have outpaced that of

other markets, it is also necessary to consider factors other than adverse selection or differences in the intensity of service use. Two recommendations are proposed to assist the MHCC in obtaining information on factors that may drive growth in small group market premiums.

(1) Conduct a study to determine the extent to which premium growth is attributable to other health care components, particularly pharmaceutical services.

One of the major limitations of this study is that analyses were conducted only with data for professional and non-institutional services. By linking the MCDB to the pharmaceutical and hospital discharge databases it will be possible to develop a more comprehensive profile of the health status and utilization patterns of individuals covered in the small group market.

(2) Conduct a Small Group Market Study to determine the level of price competitiveness and barriers to market entry.

Four carriers dominate the Maryland small group market. With greater market concentration, price competition is expected to be more limited. We recommend that the Commission undertake a study to determine the extent to which the small group market is price competitive and factors that have limited competition. This market study should include interviews with actuaries, underwriters, and other representatives from small carriers as well as carriers who have been approved to sell the CSHBP, but have not yet entered the market in order to assess barriers to entry. This study could provide the Commission with information to determine if any steps should be taken to promote price competition.

Characteristics of Maryland Residents who Obtain Health Insurance from the Small and Large Group Markets

Introduction

The Health Care and Insurance Reform Act, enacted by the Maryland Legislature in 1993, was designed in part to ensure the affordability and availability of health insurance to small employer groups. Contained in this Act were provisions that required the Maryland Health Care Commission (MHCC), formerly the Health Care Access and Cost Commission, to establish the Comprehensive Standard Health Benefit Plan (CSHBP).

The CSHBP is a uniform benefit package that carriers who sell health insurance to the small group market, the self-employed and those employer groups having between 2 and 50 employees,[1] are required to offer. The MHCC sets cost sharing levels for each of several delivery system types through which the CSHBP may be offered: indemnity, Health Maintenance Organizations (HMO), preferred provider organizations (PPO), point-of-service options (POS), triple option, and PPO/Medical Savings Accounts (PPO/MSA). Carriers participating in the small group market are required to offer the CSHBP on a guaranteed issue and guaranteed renewal basis. Groups or individuals cannot be excluded from coverage and benefits cannot be limited because of a pre-existing condition. Carriers are not permitted to establish premiums on the basis of health status or claims experience; rather, they must use community rating adjusted for age and geography. Although carriers are required to offer only the CSHBP, employers may purchase riders to enhance the benefits offered or to reduce cost sharing levels.

Under the Act, the MHCC is required to ensure that the average plan premium for the CSHBP does not exceed 12 percent of the average annual wage for Maryland residents. To remain under this cap the MHCC may adjust either the CSHBP benefit package or cost sharing levels.

Evidence to date suggests that the CSHBP has met its initial objectives of expanding health insurance coverage to small employers. Between 1995 and 2000 the number of small employers offering group insurance increased by almost 50 percent. The number of covered lives increased by over 16 percent during this same time period[2]. Despite this success, in recent years both enrollment[3] and the number of participating carriers have declined. Although enrollment declines could be related to statutory changes in the definition of eligible employers,[4] changes in enrollment could also be attributable to large

[1] Eligibility for the CSHBP was extended to groups of one beginning in 1996.
[2] Maryland Health Care Commission. Maryland's Small Group Market: Summary of Carrier Experience for the Calendar Year Ended December 31, 2000. Staff report to the Maryland Health Care Commission, June 21, 2001.
[3] The total number of covered lives declined by nearly 3 percent between 1998 and 1999 and by nearly 2 percent in 2000 (Maryland Health Care Commission, June 21, 2001.)
[4] SB 801/HB 649 limited eligibility for the small group market to employers with more than 50 full-time employees; prior to this time groups with more than 50 full-time employees could participate in the small group market under certain circumstances.

increases in premiums. Between 1998 and 1999 CSHBP premiums increased an average of 10.2 percent compared to a nationwide increase of 6.9 percent among small firms (those with between 3 and 200 employees) and a 4.8 percent increase for employer-sponsored health plans of all sizes.[5]

Objective

Growth in CSHBP premiums has been attributed to several factors, including increases in pharmaceutical costs, medical inflation, and the peaking of the medical underwriting cycle.[6] Another factor that has not been considered but that could account for the faster rate of premium growth in the CSHBP is health status. Individuals covered under the CSHBP could be sicker, more chronically ill, older or have other demographic or clinical characteristics that make them more resource intensive than the overall population. The objective of this study is to determine the extent to which this trend in premium growth may be attributable to adverse selection or differences in patterns of service utilization.

Data and Methods

Description of Data

Data for this study was obtained from the 1999 Maryland Medical Care Database (MCDB). The 1999 MCDB is an all-payer database that was developed under the sponsorship of the Maryland Health Care Commission (MHCC) to support the information needs of key stakeholders, including state policy-makers, providers and payers. Under the Code of Maryland Regulations (COMAR 10.25.6) all third-party payers operating in the state of Maryland whose premium volume exceeds established limits are required to report encounter data for inclusion in the MCDB.

Data contained in the MCDB consists of non-institutional and professional services rendered to residents by in- or out-of-state providers and includes physician services, services of non-physician health care professionals, durable medical equipment, and services rendered in freestanding laboratories, radiology and ambulatory surgical centers. Importantly, under Maryland law carriers are not required to report data on capitated primary care encounters; however, a few payers do submit records for both capitated primary and specialty services. Data elements available in the MCDB include diagnosis (ICD-9), procedures (CPT-4), and payment details.

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[5] Estimates of premium increases are based on self-reported data from a national employer survey. (Kaiser Family Foundation and the Health Research and Educational Trust, Employer Health Benefits: 2000 Annual Survey, 2001, www.kff.org.) The analyses from which these national estimates were obtained did not control for differences in benefit package. Some of the difference in average premium increase between the Maryland small group market and the U.S. could be attributable to differences between CSHBP standard benefits and benefits typically offered by employers throughout the country. Additionally, employers with fewer than 3 workers were excluded from the survey. Nationwide rates of premium growth may be understated due to the exclusion of this population.

[6] Maryland Health Care Commission, June 21, 2001.

Summary of Methods

The analyses conducted were descriptive in nature and designed to determine whether non-elderly residents who used ambulatory health care services in 1999 and who obtained health insurance through the small group market differed on key characteristics from health care users whose coverage was obtained through the large group market. For the purpose of this analysis individuals over the age of 65 and those for whom the small or large group product was not the primary insurer were excluded. Additionally, public employees and individuals covered by an employer-sponsored self-insured plan were excluded from this analysis.

Health care users in the small and large group markets were compared on a number of characteristics that included the following:

- Demographics
  - Age
  - Gender
  - Region of residence

- Health Status
  - Presence of chronic conditions: diabetes, hypertension, heart disease, cerebrovascular disease
  - Illness burden: Ambulatory Diagnostic Groups

- Pattern of Service Utilization
  - Utilization of Evaluation and Management (E&M) services, procedures, tests, and imaging
  - Relative Value Units (RVUs)
  - Total expenditures for professional and non-institutional services

Previous analyses conducted with the MCDB have shown that carriers differ substantially in the completeness and format of encounter data submitted[7] and, as noted, Maryland law does not require carriers to submit data for primary care services rendered on a capitated basis. In conducting this analysis it was important to ensure that observed differences in the characteristics of individuals covered through the small and large group markets are attributable to actual differences in the population and not data artifacts. To better ensure the comparability of data only records corresponding to the subset of carriers that participate in both the small and the large group market were retained in this analysis. Additionally analyses were conducted separately for HMO and non-HMO products to account for differences in reporting of primary care services across delivery system type.

[7] Project HOPE Center for Health Affairs, Assessment of the Maryland Medical Care Private Payer Database: The Quality of Data Reported, August 2000.

Analytical Approach

Demographic characteristics - A limited amount of demographic information is available from the MCDB: age, gender, and location of residence. Distributions of each of these variables were obtained separately for health care users who are covered through the small and large group.

Measurement of Selected Chronic Conditions and Health Status - Health status was measured using two approaches. First, estimates of the prevalence of selected conditions among health care users in the small and large group markets were calculated. The conditions selected for analysis included high cost, chronic conditions for which individuals are likely to have multiple encounters during the year. These conditions included diabetes, hypertensive disease, heart disease and cerebrovascular disease.

The presence of these conditions was determined if the patient had one or more E & M encounters in which any of the following diagnosis codes (ICD-9) were reported:

Condition	*ICD-9 Codes*
Diabetes	250 – 250.9
Hypertensive Disease	401 – 405.9
Heart Disease	393 – 398.9; 410 – 429.9
Cerebrovascular Disease	430 – 438.9

Only those records corresponding to an E&M procedure code (CPT 99201 – 99499) were used in determining the presence of these diagnoses to increase the likelihood that it was assigned by a clinician.

The proportion of health care users in the small and large group market with each of the above-listed diagnoses was estimated. The numerator in this calculation was defined as the number of individuals with one or more E&M record containing the selected diagnoses and the denominator was defined as all health care users with an MCDB record. Rates of each of the selected conditions were estimated separately for individuals covered through the small and large group market.

The second approach by which differences in health status was assessed was by examining patterns in the distribution of cases across Ambulatory Diagnostic Groups (ADG). Developed by researchers at Johns Hopkins, ADGs are groups of diagnoses that are similar in terms of severity, duration of the condition, diagnostic certainty, etiology, and specialty care involvement.[8] Patients were assigned into any or all of up to 32 ADGs using the ICD-9 codes and information on patient age and gender that was reported in claims records. All claims records except those corresponding to radiology and laboratory services were used to assign individuals into ADG groups. Patients were assigned a "1" for an ADG if they had one or more of the diagnoses or conditions that comprised that group, and a "0" otherwise. ADG scores for health care users with an MCDB record were calculated by summing the values assigned in each of the 32 groups.

[8] Johns Hopkins University, The Johns Hopkins ACG Case-Mix System, Documentation and Application Manual, February 2000.

ADG "scores" may range from 0 to 32; the greater the number of ADGs a person is assigned into the greater the level of morbidity and expected resource consumption.

The distribution of ADGs were examined and the average and median numbers of ADGs and major ADGs[9] per person were estimated for health care users covered through the small and large group markets.

Appendix A contains a description of ADG Codes and Appendix B describes the ADG codes that are considered "major" for pediatric and adult populations.

Assessment of Utilization Patterns -Health care users covered through the small and large group market were also compared in terms of utilization of each of the services that comprise the major Berenson-Eggers Type of Service (BETOS) groups: evaluation and management, procedures, tests, and imaging. The proportion of individuals that received each of these services as well as the average and median number of services in each category was calculated.

Average and median professional and non-institutional expenditures incurred in 1999, including both the patient and the insurer liability, were calculated for health care users in the small and large group markets. Since health plans do not report payments when services are capitated it was not feasible to examine expenditures for individuals covered by an HMO product. For this reason, resource intensity, measured as the average and median number of relative value units (RVUs)[10] that individuals covered through the small and large group market receive was also calculated.

Significance Testing – Significance tests, consisting of Chi-square analyses and t-tests were performed throughout this study, as appropriate, to determine whether observed differences in health statistics were statistically significant. Due to the large sample sizes on which these analyses were based, most of the results were statistically significant even when the magnitude of differences across the small and large group market was minor. Small differences across groups are not particularly meaningful for purposes of making public policy decisions and for this reason statistical test results are not presented in this report.

Multivariate linear regression was also used to ascertain the effect of each payer's small and large group market share on observed results. Again, because of the size of the population included in this study most of the observed differences in the small and large group market were found to be statistically significant. The magnitude of differences detected through bivariate and multivariate analyses was nonetheless relatively comparable and regression results are not extensively discussed in the text. Regression coefficients are presented in the appendices to this report.

[9] Major ADGs are defined as those with the highest expected levels of resource consumption, some of which include, progressive conditions that are likely to recur (e.g., diabetes with ketoacidosis, congestive heart disease), malignancies, recurrent psychosocial conditions, and unstable chronic medical conditions (e.g., sickle-cell anemia, cystic fibrosis).

[10] Work RVUs currently used in the Medicare Physician Fee schedule were applied.

Limitations

The ability to generalize results to the population of Maryland residents insured through the small and large group market is limited by the nature of the data on which this study is based. As noted, the MCDB is a claims-based data set and an individual can only be identified as enrolled in the small or large group market if they used one or more ambulatory service during the year. Moreover, there are certain conditions where an encounter record would not be available even if the enrollee received ambulatory health care services. These situations include cases in which a claim was not submitted to the insurer because the enrollee had not met the annual deductible or the enrollee only received primary care services that were reimbursed by the insurer on a capitated basis.

In general, estimates of the number of lives covered in the large and small group markets and the proportion of individuals that use selected services will tend to be underestimated due to these data omissions. At the same time, because the individuals in the MCDB are those who actually used health care professional services and have met their annual deductible, they are more likely to be sicker or heavier users of health care services than other privately insured Maryland residents. The magnitude of the discrepancy in health statistics estimated with MCDB data and actual values in the population increases as the number of records omitted from the MCDB also increases.

Assuming that small and large group market claims records have an equal likelihood of being omitted from the MCDB, any observed differences in health status or utilization would be an unbiased estimate of actual differences. Since HMOs generally provide "first-dollar" coverage, observed differences in health status or utilization are likely to be unbiased. But, the likelihood of non-HMO claims being omitted from the MCDB is not equal because deductible levels in the non-HMO small group market tend to be higher than deductible levels in the non-HMO large group market. As a result, the prevalence of chronic conditions and utilization of services may appear to be higher in the non-HMO small group market since individuals with minor conditions are less likely to have submitted a claim and to be represented in the MCDB. On the other hand, since the ADG system incorporates health care services for minor conditions into its measure of illness burden there is likely to be a significant inverse relationship between illness burden and deductible level. [11] Illness burden could appear to be higher among health care users in the non-HMO large group market.

Without information on deductible levels[12] it is not possible to adjust the analyses to reduce or estimate the magnitude of potential bias in measurement of health status and utilization. Bias resulting from omitted data is nonetheless mitigated because many employers purchase a rider to lower deductible levels. Use of major ADGs should also reduce the level of bias in estimating differences in illness burden since individuals diagnosed with these conditions are more likely to have multiple health care encounters.

[11] Zimny B, Kiu C, Foldes S. Leland, N, Walters C, Olson S. ACGs: Are they Comparable Across Different Deductible Levels? AHSR FHSR Annual Meeting Abstract Book. 1996;13:171-172.

[12] Although deductible levels are uniform for CSHBP products, employers who purchase coverage through the small group market may also purchase a rider to lower the deductible amount.

Results

Carriers Represented in Analyses – Table 1

- Data for a total of 15 payers that participate in both the small and large group markets were used in this analysis.

- Of the payers in this study, a total of 3 marketed HMO and non-HMO products, 7 marketed only HMO products, and 5 marketed only non-HMO products.

- A total of 923,085 health care users were included in this analysis.

- The major carriers represented in the small group HMO market analyses included Carefirst Blue Cross and Blue Shield of Maryland (CareFirst of MD) and Optimum Choice. Together, these two carriers accounted for slightly over half of the HMO small group market health care recipients represented in this study.

- Three carriers, CareFirst of MD, Kaiser, and Optimum Choice accounted for over 63 percent of the health care recipients included in analyses of the large group HMO market.

- Approximately 64 percent of the persons in this study who were enrolled in a small group non-HMO product, were insured by CareFirst of MD.

- CareFirst and Cigna insured 36 percent and 29 percent of health care users in the non-HMO large group market, respectively.

Table 1: Proportion of Health Care Recipients in the Analysis of the Maryland Small and Large Group Market Represented by Carriers, MCDB 1999		
	Large Group†	**Small Group**
HMO Products	(%)	(%)
Aetna	12.7	8.1
Carefirst BCBS, DC	5.5	6.3
Carefirst BCBS, MD	28.3	16.4
Cigna	1.4	4.8
GWU Health Plan	2.7	1.0
Kaiser	18.5	7.2
Optimum Choice(MAMSI)	16.5	33.9
PHN-HMO	1.7	15.1
Coventry	0.8	1.8
United Healthcare	11.9	5.4
Total	100.0	100.0
Non-HMO Products		
Carefirst BCBS, DC	5.4	10.7
Carefirst BCBS, MD	36.4	63.8
Cigna	29.0	0.2
Educators Mutual	0.5	3.8
Graphic Arts	2.1	0.7
Employers Health	1.8	2.5
MAMSI	17.0	17.8
Principal Mutual Life	7.8	0.5
Fidelity *	0.0	0.0
Guardian*	0.0	0.0
Mega Life and Health Insurance*	0.0	0.0
Mid-West National Life*	0.0	0.0
Total	100.0	100.0

† Residents who obtain coverage through a public employer or a fully self-insured plan were excluded from these analyses.

* Payer participates in the small group market but was excluded from analyses due to missing small group identifiers.

Demographic Characteristics – Table 2

HMO Products

- The age distributions of health care recipients enrolled in small and large group HMO products were comparable and the average age of health care users in both the small and large HMO group markets was 31 years.

- Compared to their counterparts in the large group market, a slightly greater proportion of health care users in the small HMO group market were male (44 percent vs. 41 percent.)

- Distribution of health care users by region was similar for the small and large groups. Only modest differences were observed in the proportion of individuals residing in the National Capital Area. About 35 percent of health care users in the large group market resided in the National Capital Area compared to 31 percent of health care users in the small group market.

Non-HMO Products

- Health care users in the non-HMO small and large group market did not differ in terms of age distribution or gender. Health care recipients in both markets averaged 31 years of age, and approximately 45 percent of individuals in both markets were male.

- Larger differences were observed in location of residence. The proportion of health care users covered through the non-HMO large group market (35.4 percent) was nearly twice as large as the proportion covered through the non-HMO small group market (17.9 percent). Over half (54.9 percent) of health care users in the non-HMO small group market resided in the Baltimore area compared to only 39.3 percent of those in the large group market.

Table 2: Characteristics of Maryland Health Care Users who Obtain Health Insurance Coverage through the Small and Large Group Market, by payer type, 1999

	HMO		Non-HMO	
	Large Group	**Small Group**	**Large Group**	**Small Group**
	%	%	%	%
Age Group (%)				
< 1 yr	1.4	1.7	1.6	1.6
1 – 17 yrs	26.2	25.7	25.5	26.8
18 – 44 yrs	45.7	46.4	48.0	46.2
45 – 64 yrs	26.8	26.2	25.0	25.4
Age (years)				
Average	31.4	31.3	31.0	30.8
Median	33	33	33	33
Male (%)	41.4	43.9	43.6	45.1
Region (%)				
National Capital	35.1	30.7	35.4	17.9
Baltimore Metro	47.4	47.8	39.3	54.1
Eastern Shore	7.7	10.4	5.3	9.9
Southern MD	3.7	3.8	5.0	6.1
Western MD	6.3	7.3	14.9	12.0

Presence of Selected Chronic Conditions – Table 3

HMO Products

- Approximately 2.5 percent of health care users in both the small and large group market were found to have an E&M diagnosis of diabetes and about 0.3 percent of individuals in both groups were diagnosed with cerebrovascular disease

- The percentage of health care users in the HMO small group market with an E&M diagnosis of heart disease was higher than the percent with these conditions in the large group market. Two percent of health care users in the large group market were diagnosed with heart disease compared to 2.6 percent of those in the small group market.

- Hypertensive disease was the only condition for which estimates of prevalence were higher for the large than for the small group market (6.2 percent for the large group market v. 5.9 percent for the small group market).

- Controlling for differences in payer mix health care recipients in the large group market had a relatively equal likelihood of having been diagnosed with each of the selected chronic conditions. (As noted in Appendix C, differences in the percentage of health care recipients in the small and group market diagnosed with each of the four chronic conditions examined in this study were less than 0.5 percentage points.)

Non-HMO Products

- Differences in the percentage of small and large group population with diabetes and cerebrovascular disease were small.

- Seven percent of health care users in the small group market were found to have an E&M diagnosis of heart disease compared to 6.2 percent of health care users in the large group market.

- Almost 3 percent of those in the small group market had a diagnosis of heart disease compared to 2.4 percent of health care users in the large group market.

- As indicated in Appendix C, differences in the likelihood of having hypertensive or heart disease were even smaller after controlling for payer-mix. Health care recipients in the small group non-HMO market were only 0.3 percentage points more likely than those in the large group to have a diagnosis of hypertension or heart disease.

Table 3: Percent of Health Care Users Who Obtain Health Insurance through the Small and Large Group Market with Selected Diagnoses, MCDB 1999.				
	HMO		***Non-HMO***	
	Large Group	**Small Group**	**Large Group**	**Small Group**
	%	%	%	%
Diabetes	2.4	2.5	2.0	2.2
Cerebrovascular	0.3	0.3	0.2	0.3
Hypertensive Disease	6.2	5.9	6.2	7.0
Heart Disease	2.0	2.6	2.4	2.9

Ambulatory Diagnosis Groups –Table 4

HMO Products:

- The median and average number of ADGs among health care users in the small and large groups was comparable. Individuals insured through both markets averaged approximately 3.0 ADGs and 0.3 major ADGs per person.

- A slightly higher proportion of those in the small group market (22.6 percent) compared to those in the large group market (20.5 percent) had one or more diagnoses that were considered to be a major ADG.

- As noted in appendix F the distribution of health care users across ADGs was comparable for the small and large group HMO market.

Non-HMO Products:

- Health care users covered through the non-HMO small group market averaged 3.3 ADGs compared to 3.0 for those covered through the large group market. No difference in the average number of major ADGs was detected; both groups averaged 0.3 major ADGs.

- Approximately one-quarter of health care users in the small group market had at least one diagnosis that was considered a major ADG compared to 22 percent of those in the large group market.

- As noted in Appendix G, the distribution of health care users across ADGs was relatively comparable for the non-HMO small and large group market. However, a greater proportion of individuals insured through the small group market were found to have a diagnosis corresponding to several of the ADG categories, including ADG 2 (minor – primary infections), ADG 9 (chronic medical conditions – stable) and ADG 31 (prevention services).

Table 4: Average and Median ADGs and Major ADGs Maryland Small and Large Group Market, MCDB 1999.				
	HMO		***Non-HMO***	
	Large Group	**Small Group**	**Large Group**	**Small Group**
Number of ADGs				
Mean	2.9	3.0	3.0	3.3
S.D.	2.2	2.2	2.4	2.4
Median	2	2	2	3
Number of Major ADGs				
% with major ADG	20.5	22.6	21.7	24.0
Mean	0.3	0.3	0.3	0.3
S.D.	0.6	0.6	0.6	0.6
Median	0	0	0	0
Persons with > 1 Major ADG				
Mean major ADGs	1.3	1.3	1.3	1.3
S.D.	0.6	0.7	0.6	0.6
Median	1	1	1	1

Utilization of Services by BETOS Category – Tables 5 and 6

HMO Products:

- Nearly 87 percent of health care recipients enrolled in a small group HMO product received at least one E & M service compared to only 80 percent of those enrolled in a large group HMO product.

- Slightly greater proportions of HMO enrollees in the small group markets were found to have received a procedure or imaging service in 1999. Nearly 35 percent of health care recipients in the small group received a procedure compared to 29 percent of health care recipients in the large group market. Similarly, 29 percent of individuals insured through the small group obtained an imaging service compared to 25 percent of those insured through the large group market.

- No difference in the proportion of enrollees in the small and large HMO group market that obtained a test was observed.

- Controlling for payer-mix, the likelihood of receiving services in each of the major BETOS groups differed by less than 3 percentage points for health care recipients in the HMO small and large group market. These results are reported in Appendix H.

- The average number of services in each of the BETOS categories that were used by health care recipients in the HMO small and large group markets differed by 0.5 units or less.

Non-HMO Products

- A total of 96 percent of health care recipients in the non-HMO small group market received an E&M service compared to only 88 percent of those in the large group market.

- Approximately 38 percent of individuals in the small group market received an imaging service compared to 33 percent of individuals in the large group market.

- Over 62 percent of health care users in the small group market received a test compared to only 55 percent of individuals in the large group market.

- Regression results (Appendix H) indicated that, controlling for payer mix differences, enrollment in a small group product increases the likelihood of receiving an E & M service by 6 percentage points and the likelihood of receiving a procedure, test, and imaging service by approximately 3 percentage points or less.

- The average number of E & M services and tests received by health care users in the small and large group market were equal; both groups received approximately 5.4 E&M services and almost 3 imaging services.

- The average number of procedures and tests received by health care users in the small and large group markets were also comparable, differing by only 1 percentage point.

Table 5: Percent of Health Care Users Who Obtain Insurance through the Small and Large Group Market who Received Selected BETOS Services. MCDB 1999.

	HMO		Non-HMO	
	Large Group	**Small Group**	**Large Group**	**Small Group**
E&M Services	80.2*	86.7*	88.1	96.0
Procedures	29.4	34.9	38.0	38.1
Tests	58.6	58.6	55.6	62.2
Imaging	24.6	29.4	32.8	38.0

* Estimates of the proportion of health care recipients covered by an HMO plan who received an E&M service understates the actual number due to the omission of primary care capitated data from the MCDB.

Table 6: Average and Median Number of BETOS Services Received by Individuals with > 1 Service, MCDB 1999.				
	HMO		Non-HMO	
	Large Group	Small Group	Large Group	Small Group
E&M Services				
Mean	4.3	4.2	5.4	5.3
S.D.	6.3	6.0	7.7	7.8
Median	3	2	3	3
Procedures				
Mean	4.5	4.9	6.7	7.6
S.D.	11.1	11.9	17.6	18.4
Median	2	2	2	2
Tests				
Mean	6.5	7.0	8.1	7.2
S.D.	9.6	10.5	11.7	10.2
Median	3	4	4	4
Imaging				
Mean	2.8	2.8	2.8	2.9
S.D.	3.8	3.8	3.5	3.8
Median	2	2	2	2

Average Relative Value Units and Expenditures for Professional Services – Table 7

HMO Products

- Resource intensity, as measured by average and median number of RVUs, was slightly higher for health care recipients in the small group market; the average number of RVUs was approximately 11 percent higher for individuals in the HMO small group market than for those in the large group market.

- Median number of RVUs was 3.1 for persons insured through the small group market and 2.8 for those insured through the large group market.

Non-HMO Products

- Average number of RVUs were 10.7 for health care recipients in the non-HMO small group market and 9.8 for health care recipients in the large group market, a difference of 9 percent.

- Median number of RVUs was also higher for individuals in the small group; 4.5 in the small compared to 3.8 for the large group market.

- Controlling for payer mix, the average number of RVUs for individuals in the small group market would be expected to be less than 1 unit higher than for those in the large group market (Appendix J).

- Average expenditures for professional and non-institutional services, including out-of-pocket reimbursement and the carriers' liability, were 4 percent higher among individuals enrolled in a non-HMO small group product.

- Controlling for difference in payer-mix within the small and large non-HMO group market, enrollment in a small group product would be expected to increase average expenditures for professional services by only approximately $35 (Appendix K).

- Disregarding the effect of the small and large group market, regression results indicate that average payments for professional services may be expected to vary more than two-fold across payers (Appendix K).

Table 7: Average RVUs and Expenditures for Health Care Users in the Maryland Small and Large Group Market, MCDB 1999

	HMO		Non-HMO	
	Large Group	**Small Group**	**Large Group**	**Small Group**
Total Work RVUs				
Mean	7.0	7.8	9.8	10.7
S.D	17.6	18.7	20.4	21.3
Median	2.8	3.1	3.8	4.5
Expenditures ($)				
Mean	N/A	N/A	793	823
S.D.	N/A	N/A	2,138	2,115
Median	N/A	N/A	255	286

N/A = not available

Conclusions

The findings from this study suggest that individuals who are covered through the small group market do not differ markedly in terms of health status or the presence of selected chronic conditions from those covered through the large group market. Although only small differences in health status were detected, individuals insured through the small group market had a somewhat more resource intensive pattern of utilization than those individuals insured through the large group market. Small group enrollees were more likely to receive certain types of services (e.g., E &M) and used a slightly more intensive mix of services, as measured by average RVUs. Among non-HMO enrollees, differences in utilization were manifested in modest differences in professional and non-institutional expenditures; compared to individuals insured through the large group market average expenditures for those insured through the small group market were only 4 percent higher.

Most of the differences between the small and large group market that were detected in this study were relatively small, and it is unclear whether individuals insured through the CSHBP are actually more resource intensive than those insured through the large group market or whether these differences are data artifacts. As previously stated, since non-HMO deductible levels tend to be higher in the small group market individuals who seek treatment for minor conditions or who merely receive preventive services are less likely to submit claims and to be represented in the small group market data. On the one hand, omission of these claims could make it appear that individuals in the small group market are more resource intensive than health care users in the large group market. On the other hand, estimates of differences in the number of individuals in the non-HMO small and large group markets who received selected types of services (Table 5) are likely to understate the magnitude of the actual difference. HMO results are unlikely to be biased by data omissions of this nature since first-dollar coverage is generally available. The extent to which non-HMO results are biased by these data omissions is unclear but may not be substantial since many employers who opt for a non-HMO product purchase riders to "buy down" deductibles.

Whether adverse selection and differences in health care utilization contributed to observed increases in small group market premiums is further difficult to ascertain from this study alone since analyses were limited to professional and non-institutional services.

Together, the findings from this study suggest that in evaluating the performance of the small group market and, specifically, the reasons why premium increases have outpaced that of other markets, it is also important to consider factors other than adverse selection or differences in the intensity of service use. These factors include the following:

- Nationwide, the dramatic growth in premiums that has been observed in recent years has not been driven by growth in physician costs, but rather, by rapidly rising drug costs. CareFirst, one of the largest small group carriers, for example, indicated in testimony before the Maryland Insurance Commissioner that between 1998 and 1999 small group market drug costs increased 21 to 26 percent compared to an increase of only 7 to 13 percent in the large group market.[13]

- Between 1998 and 1999 the Maryland small group market experienced a shift in enrollment from lower- to higher-cost plans. During this time period enrollment in CSHBP HMO products declined by 12 percent while enrollment in higher cost products - PPOs and triple-option POS plans - increased by 7 percent and 104 percent, respectively.[14] Growing popularity of mid-priced products and the concomitant shift away from HMOs is another factor potentially contributing to faster growth in small group market premiums.

[13] CareFirst BlueCross BlueShield Outlines Impact of Increasing Drug Costs. www.carefirst.com/pages/company/prmar241999.htm.

[14] Between 1998 and 1999 there was also a sharp decline in enrollment in indemnity plans, the costliest small group products. Although enrollment in indemnity plans declined by 41 percent, indemnity enrollment represents less than 1 percent of all individuals covered in the small group market. (Maryland Health Care Commission, June 21, 2001.)

- An analysis conducted by the Maryland Health Care Commission indicates that across all delivery systems the CSHBP medical loss ratio peaked in 1996 at an average of 91.05 percent. In 2000, the medical loss ratio across all small group products averaged less than 82 percent.[15] This pattern of declining medical loss ratios could indicate that price competition has become less intense in the small group market. Indeed, between 1995 and 2000 the small group market became increasingly concentrated and the number of carriers selling the CSHBP declined from 37 to 18. At present, four carriers - MAMSI, CareFirst, Aetna U.S. Healthcare and United Healthcare - represent 94 percent of the small group HMO market, 100 percent of the small group POS market and 71 percent of the small group PPO market.[16] The dominance of these carriers could limit the ability of other carriers to enter the small group market and reduce price competition in certain regions of the state.

- A high degree of market concentration suggests that the dominant carriers' underwriting experience and pricing strategies drive patterns of growth in small group premiums. Blue Cross and Blue Shield plans, for instance, experienced significant underwriting losses in 1998; these losses spurred above-average increases in premiums the following year.[17]

Health care insurance analysts have forecasted double-digit premium increases throughout 2002.[18] As premiums approach the small group affordability cap it becomes increasingly necessary for the Commission to identify the factors leading to growth in premiums prior to making significant changes in CSHBP benefits or cost-sharing arrangements. The following two recommendations are proposed to assist the MHCC in obtaining critical information to guide the decision-making process.

(1) Conduct a study to determine the extent to which premium growth is attributable to other health care components, particularly pharmaceutical services.

One of the major limitations of this study is that analyses were conducted only with data for professional and non-institutional services. By linking the MCDB to the pharmaceutical and hospital discharge databases it will be possible to develop a more comprehensive profile of the health status and utilization patterns of individuals covered in the small group market. Of particular importance, the Maryland pharmaceutical database may be used to determine whether drug costs drive small group premium growth. Moreover, information on prescription drug use provides additional information to detect the presence of chronic conditions and determine the extent to which adverse selection exists in the small group market.

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[15] Maryland Health Care Commission. Maryland's Small Group Market. Summary of Carrier Experience for the Calendar Year ended December 31, 1999", May 19, 2000.
[16] Maryland Health Care Commission. "Survey of Maryland's Small Group Market, by Group Size – Analysis of Survey Responses" January 1, 2001.
[17] Werner B. "CareFirst Expenses Rise and Offset its Revenues", Baltimore Business Journal. August 20, 1999; Panko R. "Higher Premiums Predicted", Best's Review, May 1999.
[18] Center for Studying Health System Change. "Wall Street Comes to Washington: Market Watchers Evaluate the Health Care System", Issue Brief No. 31, September 2000.

(2) Conduct a Small Group Market Study to determine the level of price competitiveness and barriers to market entry.

As previously stated, four carriers dominate the Maryland small group market. Assuming the carriers and the number of covered lives listed in Table 1 were to represent the universe of carriers that operate in each market and their corresponding market shares, it is apparent that the non-HMO small group market is substantially more concentrated than the large group market.[19] The Herfindahl-Hirschmann Index (HHI)[20] for the non-HMO small group market would be expected to be almost twice as high as that for the large group market (4,523 vs. 2,842). In comparison, the HMO market appears to be substantially less concentrated and the HHI for the small (1,860) and large group markets (1,761) are more similar.

With greater market concentration, price competition is expected to be more limited. We recommend that the Commission undertake a study to determine the extent to which the small group market is price competitive and factors that have limited competition. This market study should include interviews with actuaries, underwriters, and other representatives from small carriers as well as carriers who have been approved to sell the CSHBP, but have not yet entered the market in order to assess barriers to entry. This study could provide the Commission with information to determine if any steps should be taken to promote price competition.[21]

Among the questions that should be addressed in this market study are:

- Several carriers have received approval from the Maryland Insurance Administration to sell the CSHBP, but currently do not market this product. What are the factors that have prevented them from marketing the CSHBP?

- Are there regulatory requirements (e.g., benefit requirements) that act as barriers to carriers' entry into the small group market?

- To what extent do diseconomies of scale in the marketing and administration of the CSHBP preclude carriers from participating in the small group market?

[19] In actuality, the non-HMO large group market is likely to be even less concentrated than reflected in this study's data since carriers who participate in the large but not the small group market were omitted from these analyses.

[20] The Herfindahl-Hirschmann Index (HHI) is calculated as the sum of the squares of the market share for each carrier in the market. Higher HHI values indicate a greater degree of market concentration; an HHI of 10,000 indicates a market dominated by one carrier.

[21] HB 695, which was enacted in 2001, requires the Commission to undertake a comparative analysis of the Maryland small group market and the small group market in other states. Among the objectives of this study is to compare the benefits offered in each states' small group products and the affordability of the CSHBP relative to that of other states' small group product. This study should also provide key information on the performance of the small group market.

- Do carriers perceive the small group market as being too financially risky or claims fluctuation reserve requirements too high?

- Large carriers are better able to leverage their market share to obtain price discounts. To what extent are smaller carriers precluded from entering the small group market because they are unable to negotiate suitable discounts or establish provider networks in a market dominated by a few large carriers?

The Commission is responsible for modifying CSHBP benefits or cost sharing arrangements in order to remain within the legislated affordability cap. To effectively accomplish this charge the Commission must have a thorough understanding of underlying cost trends in the small group market. The proposed recommendations will provide the Commission with information to assist in determining how benefits, cost-sharing arrangements or state regulations should be modified to make the CSHBP more affordable and accessible to state residents.

APPENDIX A

Description of ADG Codes*	
ADG Code	**Description**
1	Time Limited: Minor
2	Time Limited: Minor-Primary Infections
3	Time Limited: Major
4	Time Limited: Major-Primary Infections
5	Allergies
6	Asthma
7	Likely to Recur: Discrete
8	Likely to Recur: Discrete-Infections
9	Likely to Recur: Progressive
10	Chronic Medical: Stable
11	Chronic Medical: Unstable
12	Chronic Specialty: Stable-Orthopedic
13	Chronic Specialty: Stable-Ear, Nose, Throat
14	Chronic Specialty: Stable-Eye
15	No Longer in Use
16	Chronic Specialty: Unstable-Orthopedic
17	Chronic Specialty: Unstable-Ear, Nose, Throat
18	Chronic Specialty: Unstable-Eye
19	No Longer in Use
20	Dermatologic
21	Injuries/Adverse Effects: Minor
22	Injuries/Adverse Effects: Major
23	Psychosocial: Time limited, Minor
24	Psychosocial: Recurrent or Persistent, Stable
25	Psychosocial: Recurrent or Persistent, Unstable
26	Signs/Symptoms: Minor
27	Signs/Symptoms: Uncertain
28	Signs/Symptoms: Major
29	Discretionary
30	See and Reassure
31	Prevention/Administrative
32	Malignancy
33	Pregnancy
34	Dental

*Health Services Research & Development Center at Johns Hopkins University School of Hygiene and Public Health

APPENDIX B

Description of Major ADGs for Pediatric and Adult Populations*	
Pediatric Major ADGs (ages 0- 17 years)	
ADG Code	**Description**
3	Time Limited: Major
9	Likely to Recur: Progressive
11	Chronic Medical: Unstable
12	Chronic Specialty Stable – Orthopedic
13	Chronic Specialty Stable – Ear, Nose, Throat
18	Chronic Specialty Unstable – Eye
25	Psychosocial – Recurrent or Persistent: Unstable
32	Malignancy
Adult Major ADGs (ages 18 and up)	
ADG Code	**Description**
3	Time Limited: Major
4	Time Limited Major – Primary Infections
9	Likely to Recur: Progressive
11	Chronic Medical: Unstable
16	Chronic Specialty: Unstable – Orthopedic
22	Injuries/Adverse Effects: Major
25	Psychosocial – Recurrent or Persistent: Unstable
32	Malignancy

*Health Services Research & Development Center at Johns Hopkins University School of Hygiene and Public Health

APPENDIX C

Coefficients for Regression Models of the Likelihood of Having Selected Chronic Conditions for Health Care Users in the Small and Large HMO Group Market, MCDB 1999

Variable	Diabetes		Cerebral Dx		Hypertension		Heart Dx	
Intercept	.024	*	.002	*	.057	*	.021	*
Small Group	.003	*	.001	*	.004	*	.005	*
Carrier 2	.003	*	.002	*	.009	*	.008	*
Carrier 5	.018	*	.003	*	.052	*	.011	*
Carrier 7	-.002		.000		-.001		-.002	
Carrier 11	.003	*	.002	*	.001		.008	*
Carrier 18	-.021	*	-.001	*	-.054	*	-.016	*
Carrier 23	-.003	*	.002	*	-.020	*	.009	*
Carrier 24	-.004		.000		.002		.000	
Carrier 25	.001	*	.001		.032	*	.010	*
Carrier 32	.016	*	.003	*	.045	*	.015	*

* Indicates differences are statistically significant, p < .05 or better. Reference group is carrier 4.

Coefficients for Regression Models of the Likelihood of Having Selected Chronic Conditions for Health Care Users in the Small and Large Non-HMO Group Market, MCDB 1999

Variable	Diabetes		Cerebral Dx		Hypertension		Heart Dx	
Intercept	.017	*	.002	*	.049	*	.022	*
Small Group	.000		.000		.003	*	.003	*
Carrier 5	.005	*	.001		.025	*	.008	*
Carrier 7	.005	*	.000		.019	*	.007	*
Carrier 8	.003		.001		.020	*	.008	*
Carrier 13	-.017	*	-.002	*	-.048	*	-.020	*
Carrier 16	-.002		-.000		-.002		.000	
Carrier 19	.007	*	.000		.025	*	.010	*
Carrier 26	-.011	*	-.002	*	-.030	*	-.011	*

* Indicates differences are statistically significant, p < .05 or better. Reference group is carrier 4.

APPENDIX D

Coefficients for a Model of Average ADGs and Average Major ADGs, Health Care Users in the HMO Small and Large Group Markets, MCDB 1999.				
Variable	**ADGS**		**Major ADGs**	
Intercept	2.914	*	0.247	*
Small Group	0.141	*	0.039	*
Carrier 2	0.477	*	0.103	*
Carrier 5	0.385	*	0.063	*
Carrier 7	- 0.137	*	- 0.026	*
Carrier 11	0.223		0.047	*
Carrier 18	- 1.002	*	- 0.100	*
Carrier 23	- 0.071	*	0.074	*
Carrier 24	- 0.189	*	- 0.004	
Carrier 25	0.321	*	0.036	*
Carrier 32	0.491	*	0.099	*

* Indicates results are statistically significant, p < .05 or better. Reference group is carrier 4.

Coefficients for a Model of Average ADGs and Average Major ADGs, Health Care Users in the Non-HMO Small and Large Group Markets, MCDB 1999.				
Variable	**Total ADGs**		**Total Major ADGs**	
Intercept	3.076	*	0.272	*
Small Group	0.139	*	0.025	
Carrier 5	0.257	*	0.038	*
Carrier 7	0.162	*	0.042	*
Carrier 8	0.069	*	0.034	*
Carrier 13	- 1.325	*	0.671	*
Carrier 16	- 0.385	*	- 0.016	
Carrier 19	0.451	*	0.065	*
Carrier 26	- 1.782	*	- 0.146	*

* Indicates results are statistically significant, p < .05 or better. Reference group is carrier 4.

APPENDIX E

Coefficients for a Model of Average ADGs and Average Major ADGs, Health Care Users in the HMO Small and Large Group Markets with >1 Major ADG, MCDB 1999.				
Variable	**Total ADGs**		**Total Major ADGs**	
Intercept	4.551	*	1.240	*
Small Group	0.117	*	0.034	*
Carrier 2	1.198	*	0.205	*
Carrier 5	0.531	*	0.064	*
Carrier 7	- 0.223	*	- 0.021	
Carrier 11	0.063		0.067	*
Carrier 18	- 1.575	*	- 0.147	*
Carrier 23	0.262	*	0.091	*
Carrier 24	- 0.393	*	- 0.041	*
Carrier 25	0.613	*	0.035	
Carrier 32	0.665	*	0.119	*

* Indicates results are statistically significant, p < .05 or better. Reference group is carrier 4.

Coefficients for a Model of Average ADGs and Average Major ADGs, Health Care Users in the Non-HMO Small and Large Group Markets with >1 Major ADG, MCDB 1999.				
Variable	**Total ADGs**		**Total Major ADGs**	
Intercept	4.824	*	1.245	*
Small Group	- 0.025		- 0.002	
Carrier 5	0.424	*	0.059	*
Carrier 7	0.121	*	0.020	
Carrier 8	0.168	*	0.042	*
Carrier 13	- 2.744	*	0.115	
Carrier 16	- 0.631	*	- 0.018	*
Carrier 19	0.743	*	0.086	
Carrier 26	- 0.583	*	- 0.037	

* Indicates results are statistically significant, p < .05 or better. Reference group is carrier 4.

APPENDIX F

Percentage of Health Care Users in the Small and Large Group HMO Market with Selected ADGs, MCDB 1999.			
ADG	**Description**	**Large Group (%)**	**Small Group (%)**
ADG1	Time Limited: Minor	15.4	15.4
ADG2	Time Limited: Minor-Primary Infections	26.8	25.4
ADG3	Time Limited: Major	3.6	4.0
ADG4	Time Limited: Major-Primary Infections	4.2	4.3
ADG5	Allergies	6.7	6.3
ADG6	Asthma	4.0	3.7
ADG7	Likely to Recur: Discrete	11.7	12.2
ADG8	Likely to Recur: Discrete-Infections	16.0	15.6
ADG9	Likely to Recur: Progressive	1.1	1.2
ADG10	Chronic Medical: Stable	21.6	21.7
ADG11	Chronic Medical: Unstable	8.7	9.6
ADG12	Chronic Specialty: Stable-Orthopedic	2.4	2.6
ADG13	Chronic Specialty: Stable-Ear, Nose, Throat	1.2	1.2
ADG14	Chronic Specialty: Stable-Eye	11.0	9.5
ADG15	No Longer in Use*	0.0	0.0
ADG16	Chronic Specialty: Unstable-Orthopedic	1.4	1.7
ADG17	Chronic Specialty: Unstable-Ear, Nose, Throat	0.1	0.1
ADG18	Chronic Specialty: Unstable-Eye	2.5	2.3
ADG19	No Longer in Use*	0.0	0.0
ADG20	Dermatologic	10.5	11.0
ADG21	Injuries/Adverse Effects: Minor	10.1	10.0
ADG22	Injuries/Adverse Effects: Major	6.8	7.5
ADG23	Psychosocial: Time limited, Minor	2.8	2.7
ADG24	Psychosocial: Recurrent or Persistent, Stable	5.9	5.6
ADG25	Psychosocial: Recurrent or Persistent, Unstable	1.4	1.5
ADG26	Signs/Symptoms: Minor	17.9	18.5
ADG27	Signs/Symptoms: Uncertain	25.2	25.3
ADG28	Signs/Symptoms: Major	14.2	15.3
ADG29	Discretionary	8.4	9.1
ADG30	See and Reassure	2.9	3.1
ADG31	Prevention/Administrative	45.1	44.9
ADG32	Malignancy	1.7	2.0
ADG33	Pregnancy	2.9	2.9
ADG34	Dental	0.4	0.4

APPENDIX G

Percentage of Health Care Users in the Small and Large Group Non-HMO Market with Selected ADGs, MCDB 1999.			
ADG	**Description**	**Large Group (%)**	**Small Group (%)**
ADG1	Time Limited: Minor	16.1	18.4
ADG2	Time Limited: Minor-Primary Infections	29.9	35.3
ADG3	Time Limited: Major	3.5	3.8
ADG4	Time Limited: Major-Primary Infections	5.3	5.2
ADG5	Allergies	7.3	7.9
ADG6	Asthma	3.5	3.7
ADG7	Likely to Recur: Discrete	11.6	13.7
ADG8	Likely to Recur: Discrete-Infections	16.9	19.4
ADG9	Likely to Recur: Progressive	0.9	1.0
ADG10	Chronic Medical: Stable	20.4	23.9
ADG11	Chronic Medical: Unstable	8.7	9.9
ADG12	Chronic Specialty: Stable-Orthopedic	2.5	2.9
ADG13	Chronic Specialty: Stable-Ear, Nose, Throat	1.3	1.4
ADG14	Chronic Specialty: Stable-Eye	8.9	6.6
ADG15	No Longer in Use*	0.0	0.0
ADG16	Chronic Specialty: Unstable-Orthopedic	1.7	2.2
ADG17	Chronic Specialty: Unstable-Ear, Nose, Throat	0.1	0.1
ADG18	Chronic Specialty: Unstable-Eye	2.5	2.7
ADG19	No Longer in Use*	0.0	0.0
ADG20	Dermatologic	12.1	14.2
ADG21	Injuries/Adverse Effects: Minor	10.3	12.3
ADG22	Injuries/Adverse Effects: Major	6.6	8.1
ADG23	Psychosocial: Time limited, Minor	4.0	3.7
ADG24	Psychosocial: Recurrent or Persistent, Stable	8.5	8.1
ADG25	Psychosocial: Recurrent or Persistent, Unstable	2.3	1.9
ADG26	Signs/Symptoms: Minor	18.2	20.0
ADG27	Signs/Symptoms: Uncertain	22.1	25.5
ADG28	Signs/Symptoms: Major	14.3	15.5
ADG29	Discretionary	8.2	9.6
ADG30	See and Reassure	3.0	3.5
ADG31	Prevention/Administrative	37.7	44.3
ADG32	Malignancy	2.3	2.2
ADG33	Pregnancy	2.6	2.6
ADG34	Dental	4.5	0.3

APPENDIX H

Coefficients for Regression Models of the Likelihood of Obtaining BETOS Services, Health Care Users in the Small and Large Group HMO Market, MCDB 1999.

Variable	E &M		Procedures		Imaging		Tests	
Intercept	0.977	*	0.389	*	0.341	*	0.5521	*
Small Group	0.012	*	0.028	*	- 0.003	*	- 0.021	*
Carrier 2	- 0.030	*	- 0.018	*	- 0.110	*	- 0.105	*
Carrier 5	- 0.017	*	- 0.088	*	- 0.110	*	- 0.184	*
Carrier 7	- 0.068	*	- 0.108	*	- 0.091	*	0.028	*
Carrier 11	- 0.041	*	- 0.016	*	0.063	*	0.032	*
Carrier 18	- 0.735	*	- 0.191	*	- 0.308	*	0.345	*
Carrier 23	- 0.135	*	0.024	*	0.030	*	0.103	*
Carrier 24	- 0.044	*	- 0.105	*	- 0.072	*	0.018	*
Carrier 25	0.000		- 0.022	*	- 0.090	*	- 0.148	*
Carrier 32	- 0.175	*	- 0.043	*	0.001		0.039	*

* Indicates results are statistically significant, $p < .05$ or better. Reference group is carrier 4.

Coefficients for Regression Models of the Likelihood of Obtaining BETOS Services, Health Care Users in the Small and Large Group Non-HMO Market, MCDB 1999.

Variable	E &M		Procedures		Imaging		Tests	
Intercept	0.970	*	0.442	*	0.381	*	0.678	*
Small Group	0.060	*	0.021	*	0.017	*	0.033	*
Carrier 5	- 0.011	*	- 0.073	*	0.009	*	- 0.058	*
Carrier 7	0.034	*	- 0.089	*	- 0.058	*	- 0.090	*
Carrier 8	- 0.030	*	- 0.054	*	- 0.009		- 0.113	*
Carrier 13	0.034	*	- 0.043	*	- 0.002		- 0.009	
Carrier 16	- 0.030	*	- 0.063	*	- 0.043	*	- 0.084	*
Carrier 19	0.001		- 0.065	*	- 0.023	*	- 0.060	*
Carrier 26	- 0.467	*	0.336	*	- 0.215		- 0.366	

* Indicates results are statistically significant, $p < .05$ or better. Reference group is carrier 4.

APPENDIX I

Coefficients for Regression Models of the Number of BETOS Services, Health Care Users in the Small and Large Group HMO Market, MCDB 1999.

Variable	E &M		Procedures		Imaging		Tests	
Intercept	5.782	*	6.728	*	3.111	*	6.629	*
Small Group	0.077	*	0.110		0.135	*	- 0.031	
Carrier 2	0.501	*	- 0.365	*	1.142	*	0.193	*
Carrier 5	- 1.482	*	- 3.227	*	- 0.579	*	- 3.597	*
Carrier 7	- 1.501	*	- 3.533	*	- 0.386	*	2.150	*
Carrier 11	- 2.191	*	- 4.102	*	- 0.310	*	- 3.759	*
Carrier 18	- 3.958	*	- 2.849	*	- 0.849	*	1.428	*
Carrier 23	- 2.127	*	- 1.540	*	- 0.301	*	0.362	*
Carrier 24	- 2.260	*	- 2.008	*	- 1.026	*	- 0.124	
Carrier 25	- 1.848	*	- 1.827	*	- 0.231	*	- 4.159	*
Carrier 32	- 1.721	*	- 2.780	*	- 0.318	*	- 1.560	*

* Indicates results are statistically significant, $p < .05$ or better. Reference group is carrier 4.

Coefficients for Regression Models of the Number of BETOS Services, Health Care Users in the Small and Large Group Non-HMO Market, MCDB 1999.

Variable	E &M		Procedures		Imaging		Tests	
Intercept	6.905	*	9.085	*	3.166	*	9.553	*
Small Group	- 0.156	*	- 0.212		0.019		- 0.038	
Carrier 5	- 1.723	*	- 1.084	*	- 0.376	*	- 2.852	*
Carrier 7	- 1.610	*	- 2.645	*	- 0.167	*	- 0.480	*
Carrier 8	- 0.854	*	- 2.322	*	- 0.522	*	- 2.616	*
Carrier 13	- 1.177	*	- 5.121	*	- 0.219	*	- 1.715	*
Carrier 16	- 1.472	*	- 2.371	*	- 0.398	*	- 1.651	*
Carrier 19	- 2.182	*	- 3.192	*	- 0.472	*	- 2.065	*
Carrier 26	- 2.190	*	- 5.410	*	- 0.265	*	- 2.431	*

* Indicates results are statistically significant, $p < .05$ or better. Reference group is carrier 4.

APPENDIX J

Coefficients for a Model of Average RVUs for Health Care Users in the Small and Large Group HMO Market, MCDB 1999		
Variable	**Coefficients**	
Intercept	11.812	*
Small Group	0.892	*
Carrier 2	0.165	
Carrier 5	- 5.361	*
Carrier 7	- 3.877	*
Carrier 11	- 4.501	*
Carrier 18	- 9.330	*
Carrier 23	- 3.115	*
Carrier 24	- 6.070	*
Carrier 25	- 4.900	*
Carrier 32	- 3.022	*

* Indicates results are statistically significant, $p < .05$ or better. Reference group is carrier 4.

Coefficients for a Model of Average RVUs for Health Care Users in the Small and Large Group Non-HMO Market, MCDB 1999		
Variable	**Coefficients**	
Intercept	15.033	*
Small Group	0.674	*
Carrier 5	- 4.797	*
Carrier 7	- 3.267	*
Carrier 8	- 3.609	*
Carrier 13	- 3.378	*
Carrier 16	- 3.803	*
Carrier 19	- 5.374	*
Carrier 26	- 10.240	*

* Indicates results are statistically significant, $p < .05$ or better. Reference group is carrier 4.

APPENDIX K

Coefficients for a Model of Average Expenditures for Professional Services, Health Care Users in the Small and Large Group Non-HMO Market, MCDB 1999		
Variable	**Coefficients**	
Intercept	1116.5	*
Small Group	34.5	*
Carrier 5	- 374.1	*
Carrier 7	- 273.1	*
Carrier 8	78.5	*
Carrier 13	183.1	*
Carrier 16	- 207.9	*
Carrier 19	- 294.0	*
Carrier 26	- 305.4	*

* Indicates results are statistically significant, $p < .05$ or better. Reference group is carrier 4.